

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strike through~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) A converting apparatus, comprising:
 - a document inputting device inputting information of a structured document that is written with a set of hierarchical elements, and composed of a plurality of records each including one element or more;
 - a joining device generating a new element by joining contents of elements relatively at a same position among two records or more of the structured document;
 - a generating device generating a new record that includes the new element and inherits a relative position relationship of elements in the two records or more;
 - a converting device converting the structured document by replacing the two records or more with the new record, thereby decreasing the number of hierarchical elements of the structured document; and
 - a document outputting device outputting the structured document after being converted.

2. (original) The converting apparatus according to claim 1, further comprising:
 - a key inputting device inputting a search key; and
 - a searching device searching the structured document after being converted with the search key, extracting a character string corresponding to a position of a detected character string from contents of an element in a certain record when the character string corresponding to the search key is detected from contents of another element in the certain record, restoring a record before being converted, which includes the search key, from the detected character string and the extracted character string, and outputting the restored record as a search result.

3. (original) A converting apparatus, comprising:
 - a document inputting device inputting information of a structured document written with a set of hierarchical elements;
 - a storing device storing the information of the structured document;

a joining device generating a plurality of new elements by joining, as synthesis targets, content of each element included in a first combination of elements that successively exist side by side in a level immediately below a certain element and have a same element name, and content of each element included in a second combination of elements that have a same element name in a certain level lower than the elements of the first combination, elements in each level on a route from the elements of the first combination to the certain level having a same element name, in the structured document;

a generating device generating a synthesized substructure that includes the plurality of new elements, and inherits a relative position relationship of original elements among the plurality of new elements;

a duplicating device generating a duplication of an unjoined element below a new element included in a synthesized substructure generated from an element higher than the unjoined element;

a deleting device deleting an unnecessary original element;

a converting device converting the structured document into a structured document of a synthetic type configured by a synthesized substructure by using said joining device, said generating device, said duplicating device, and said deleting device, thereby decreasing the number of hierarchical elements of the structured document; and

a document outputting device outputting the structured document of the synthetic type.

4. (original) The converting apparatus according to claim 3, wherein said generating device generates the synthesized substructure if a combination of elements that successively exist side by side and have a same element name in two levels or more on the route to the certain level is not found.

5. (original) The converting apparatus according to claim 3, wherein said joining device divides the second combination of the elements into a plurality of groups each composed of a predetermined number of elements, and specifies the synthesis targets based on the predetermined number of elements included in each of the groups.

6. (original) The converting apparatus according to claim 3, wherein said joining device generates contents of the new elements by inserting a delimiter between two joined contents.

7. (original) The converting apparatus according to claim 6, wherein said joining device consecutively inserts the delimiter in the contents of the new elements if content of an element which becomes the synthesis target is lacking.

8. (original) The converting apparatus according to claim 6, further comprising:
a key inputting device inputting a search key; and
a searching device comparing a character string between two delimiters, which is included in contents of elements within the structured document of the synthetic type, with a character string of the search key, obtaining an order of a delimiter preceding a character string corresponding to the search key when the character string corresponding to the search key is detected from contents of elements within a certain synthesized substructure, extracting a character string between a delimiter corresponding to the order and a next delimiter in contents of another element in the certain synthesized substructure, restoring a corresponding portion of the structured document before being converted from the detected character string and the extracted character string, and outputting the restored portion as a search result.

9. (currently amended) A computer-readable storage medium on which is recorded a program for causing a computer to execute a process, said process comprising:

generating a new element by joining contents of elements relatively at a same position among two records or more of a structured document that is written with a set of hierarchical elements and composed of a plurality of records each including one element or more;

generating a new record that includes the new element and inherits a relative position relationship of elements in the two records or more, thereby decreasing the number of hierarchical elements of the structured document; and

converting the structured document by replacing the two records or more with the new record.

10. (currently amended) A propagation signal for propagating a program to a computer, the program causing the computer to perform:

generating a new element by joining contents of elements relatively at a same position among two records or more of a structured document that is written with a set of hierarchical elements and composed of a plurality of records each including one element or more;

generating a new record that includes the new element and inherits a relative position relationship of elements in the two records or more, thereby decreasing the number of hierarchical elements of the structured document; and

converting the structured document by replacing the two records or more with the new record.

11. (currently amended) A converting apparatus, comprising:

document inputting means for inputting information of a structured document that is written with a set of hierarchical elements, and composed of a plurality of records each including one element or more;

joining means for generating a new element by joining contents of elements relatively at a same position among two records or more of the structured document;

generating means for generating a new record that includes the new element and inherits a relative position relationship of elements in the two records or more;

converting means for converting the structured document by replacing the two records or more with the new record, thereby decreasing the number of hierarchical elements of the structured document; and

document outputting means for outputting the structured document after being converted.

12. (new) A method of compressing a hierarchically structured document, comprising:

analyzing a hierarchy of the hierarchically structured document; and

combining hierarchical elements of the hierarchically structured document responsive to common element names for the hierarchical elements and a common child element structure of the hierarchical elements.

13. (new) A method of compressing a hierarchically structured document, comprising:

analyzing a hierarchy of the hierarchically structured document; and

combining hierarchical elements of the hierarchically structured document responsive to common features of parts of a hierarchy common of the hierarchically structured document.